IN THE FIELD

Field Museum
Member Magazine

Vol. 95, No. 2
Summer 2024

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ON THE COVER
Archaeopteryx was the world's first known bird. This animal evolved from dinosaurs 150 million years ago, during the Jurassic Period. The Chicago *Archaeopteryx* (prounounced ar-key-OP-ter-icks) is one of only a dozen fossils of this animal ever found, and has the best preserved skull in the world. Scientists will be studying this fossil for years to come.
📷 Delaney Drummond © Field Museum

Let us know your thoughts about *In The Field* magazine. Email your comments to ITF@fieldmuseum.org

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Dear Friends,

© FIELD MUSEUM 2021 (KYLE FLUBACKER PHOTOGRAPHY)

Four years ago, we were presented with an opportunity to acquire one of the most important fossils in the history of paleontology—truly, in the history of science. *Archaeopteryx*, first discovered in 1861, was the species that helped prove Charles Darwin's revolutionary theory of evolution: it demonstrated the evolution of birds from dinosaurs by containing traits of both.

Now, we are tremendously proud to be able to share this rare specimen with Field Museum visitors and scientists. The "Chicago *Archaeopteryx*" is one of only 13 specimens known to exist, and the only one in a major natural history museum in the Western Hemisphere.

For the past eighteen months, Associate Curator of Fossil Reptiles Dr. Jingmai O'Connor has been studying our new dinosaur. Because the details of our *Archaeopteryx*—such as its pointed teeth and its feathers—are so exceptionally well-preserved, she has already made a series of exciting new discoveries that we look forward to sharing with you. We are confident this fossil will become an ambassador for paleontology, joining the Field's spectacular collection of fan-favorite dinosaurs, including SUE the *T. rex*.

If you didn't see *Archaeopteryx* on special temporary display after its unveiling in May, I hope that you will come and see it in its permanent home in *Evolving Planet*, opening on September 27.

I want to express my gratitude to all of you who attended Members' Nights earlier this summer. It is always a pleasure to see so many friends enjoying the behind-the-scenes treasures of the Field Museum in this special annual tradition, one that I know our staff members value as much as I do.

It was fascinating to see the natural world through your eyes in last year's first-ever members' photo contest. We are all eager to see more creative images this year. Don't forget to make your submissions before August (specific date)!

With gratitude for your support of the Field Museum,

Julian Siggers

Julian Siggers, PhD
President and CEO

TAKE A VOYAGE TO THE BOTTOM OF THE SEA.

UNSEEN OCEANS

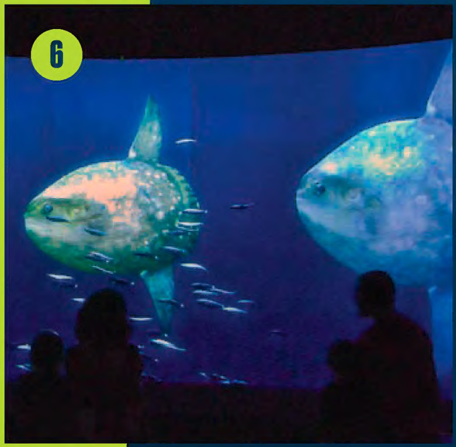
Become immersed in waves and schools of fish or pilot a submersible through the ocean in an adventure game. Meet live sea animals like seahorses and jellyfish, and play with sand while learning about sea levels. **Don't miss *Unseen Oceans*, now open until January 2025.**

TAKE A TOUR WITH US!

1. Plankton produce up to 50% of the oxygen that we breathe. Find the sea sapphire plankton!

2. Much of the ocean is hard to see because light waves cannot penetrate far from the surface. This is why scientists use sonar technology to explore the ocean. Can you find one of the pieces of equipment used named DOR-E?

3. Seahorses use their tails to hold on to plants to keep from being washed away by the current. Find our live seahorses and see if you can spot one hanging on to a plant!



4. To capture photos with fluorescent light, scientists use specially adapted underwater cameras. Find the fluorescent lens and look through to see for yourself!

5. Do you ever wonder what happens to trash that flows into the ocean? Find the shrinking cups and see what happens to styrofoam in the sea.

6. Want to explore the ocean while staying dry? Find the theater playing Journey to the Deep and take a seat for a trip with scientists under the sea.

7. How do we know all of this about the ocean? Meet one of the scientists from the Field Museum who contributes to research about octopus, wood clams, the deep sea, and more! Take a look at Janet Voight's display.

8. The highest mountain in the world, Mt. Everest is as tall as the Mariana Trench is deep! Take a look at the sandbox and build your own mountains and trenches!

9. Humans lose a set of teeth when their adult teeth are coming in, but sharks like the ancient megalodon could have lost thousands of teeth in their lifetimes! Try to find the megalodon tooth.

10. The deepest part of the ocean is more than 35,000 feet deep! Take the reins and steer your own submarine to explore the waters in the submarine game.

Take me out and explore!

© DANIELLE WILLIAMS, FIELD MUSEUM

ART AND SCIENCE MEET IN THE DEEP SEA

BY ANGELICA LONDON, EXHIBITIONS

Among the immersive experiences found in *Unseen Oceans*, if you pay close attention, you'll notice the exhibition has two larger-than-life sized murals. These stunning additions are creations of Michel Droge and Carlos Hiller, artists who participated in the Schmidt Ocean Institute's Artist-at-Sea program. In this program, artists sail and collaborate with scientists and crew aboard the Institute's research vessel, R/V *Falkor (too)*, as a platform of connection and interdisciplinary reach. The program encourages artists to incorporate elements of technology or cutting-edge methods into their techniques or medium. Artists are expected to make deep, meaningful connections to the science on board, bridging the research conducted at sea with the rest of the world.

Argentine-borne **Carlos Hiller** felt a special interest in studying painting and biology from an early age. After traveling widely in South America, at 21 he settled in Costa Rica and became a naturalized citizen. He devotes himself fully to painting and realizing his life as an artist. To him, the Pacific Ocean is a frontier to the new and unknown, and he immerses himself in capturing marine images on the canvas, inspired by his experiences as a diver and now as a member of a research cruise. Several countries have hosted his solo exhibitions and several collectors have his paintings. Through art he exposes the wonders that inhabit our oceans; he uses art to convey a clear message about the challenges faced by the seas, and therefore, all life on earth.

Michel Droge is a Maine-based painter and printmaker whose work engages with the environment and ideas of multi-species, non-binary, and entangled life systems. Inspired by landscape, mapping, and environmental research, Michel's abstract paintings and drawings visually unravel existing systems and make way for emerging new ones. They model a queer matrix in conversation with nineteenth-century landscape schools, philosophers, and naturalists. Michel's practice includes collaborative engagement with scientific researchers, conservation groups, and communities. They have participated in 50 exhibitions, and have been featured in thirteen solo exhibitions. Michel is the founder and mentor of SEVEN—An Artists' Collective and a visiting Assistant Professor of Art and Visual Culture at Bates College in Lewiston, Maine.

Unseen Oceans is organized by the American Museum of Natural History, New York.

Field Museum Major Sponsor:

MEMBERS
SEE IT FIRST.
MEMBERS
SEE IT FREE.

Explore the world in our galleries, right here in Chicago—all year long. Members enjoy the following benefits:

- Free all-access admission
- Annual Members' Nights
- Spooktacular Science family day in October
- Members-only Holiday Lounge in December
- After-hours exhibition openings and lectures
- Discounts on 3D movie tickets
- Discounts on birthday party packages
- 10% off Museum store and restaurant purchases
- Family nights and programs
- Discounts and early registration for Summer Camps, Dozin' with the Dinos, and other educational programs
- Double discount days in October and December (20% off in the restaurants and Museum store)
- Free subscription for *In the Field*, including a family friendly pull-out section and the annual photography competition.
- Member e-newsletter with updates for the whole family
- Free reciprocal admission to participating science and technology museums all over the world (ASTC)
- Free admission to annual heritage month programs
- Discounts on evening cultural programs

VILLE SINKKONEN © FIELD MUSEUM

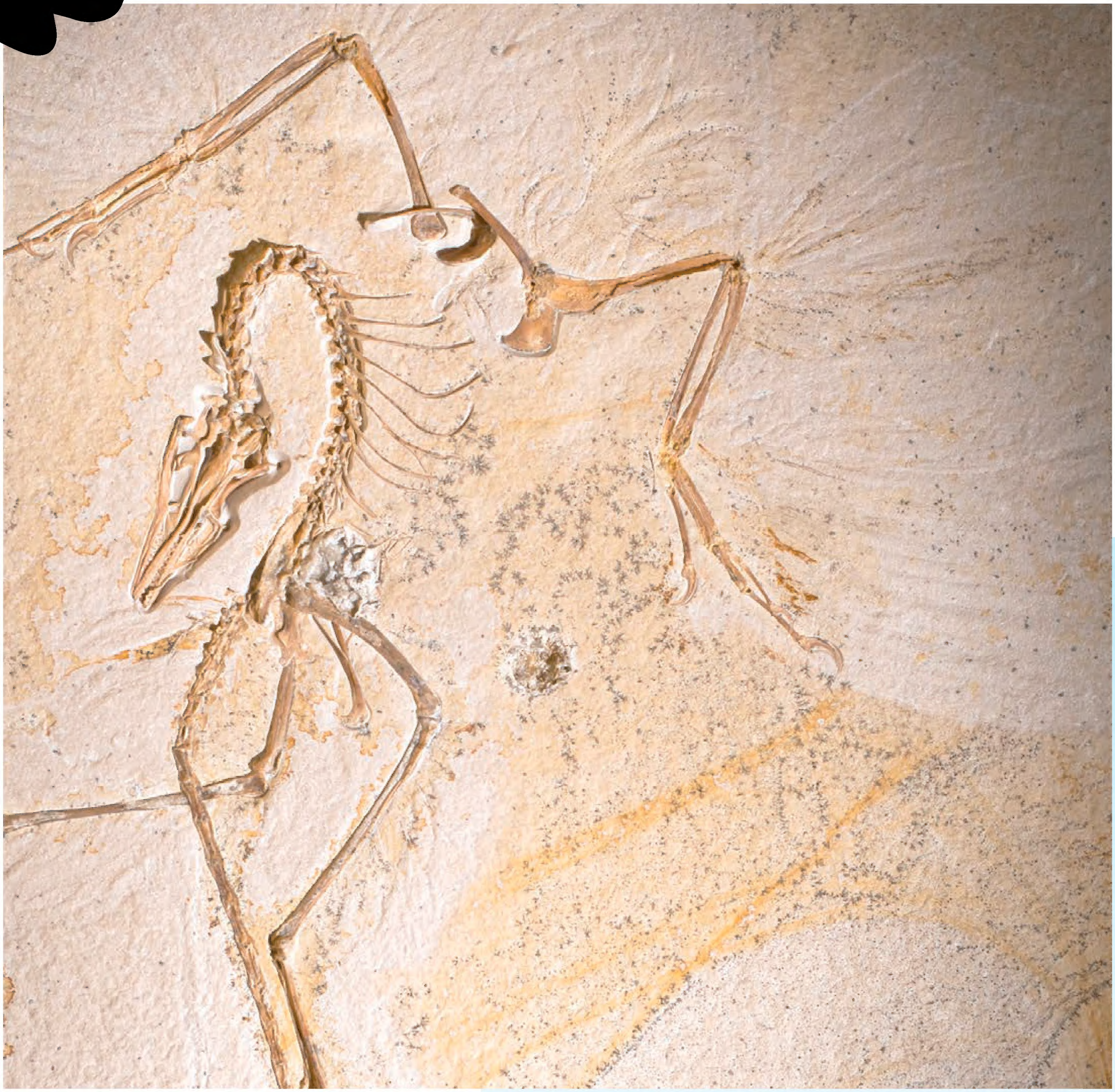
meet the

CHICAGO ARCHAEOPTERYX

Every bird you've ever seen—every pigeon at a bus stop, every penguin at the zoo—is a living, modern dinosaur.

By Kate Golembiewski
Public Relations

Birds are the only group of dinosaurs that survived the mass extinction caused when an asteroid hit the Earth 66 million years ago. A fossil called *Archaeopteryx* (ar-key-AHP-ter-icks) with feathers, hollow bones, clawed wings, 52 tiny teeth, and a long bony tail is the earliest known dinosaur that also qualifies as a bird. This spring, the Field Museum became one of the few places on Earth to see a real *Archaeopteryx* fossil.



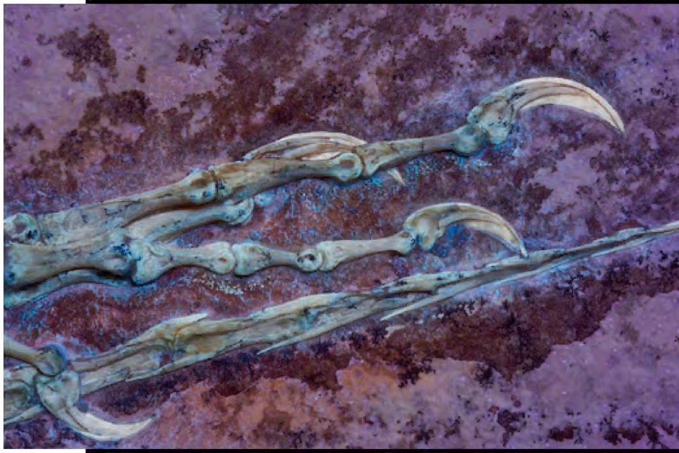
"*Archaeopteryx* is arguably the most important fossil ever discovered. It transformed how scientists see the world, by providing strong support for Darwin's theory of evolution," said Field Museum President and CEO Julian Siggers, PhD. "This is the Field Museum's most significant fossil acquisition since SUE the T. rex, and we're thrilled to be able to study 'the Chicago *Archaeopteryx*' and to share it with our visitors."

Only a dozen other *Archaeopteryx* specimens have been found; most of them are in Europe. The only other *Archaeopteryx* in the United States is in Thermopolis, Wyoming. The Field's fossil was unearthed in southern Germany and has been in the hands of private collectors since before 1990. A coalition of Field Trustees and other donors helped the Museum acquire it.

"When the specimen arrived, it was still unprepared, meaning that most of the skeleton was obscured by a top layer of rock. We weren't sure how complete it was—when we X-rayed it and saw that the fossil inside was nearly 100% complete, we cheered," said Jingmai O'Connor, PhD, associate curator of fossil reptiles.

The fossil's unprepared state provided a unique opportunity. "When a fossil is prepared for the commercial fossil industry, sometimes the physical beauty of the specimen is prioritized over the scientific details. But the Field Museum's fossil preparators Akiko Shinya and Connie Van Beek preserved all sorts of fine details that are invaluable to scientists using this fossil for research," said O'Connor. She has already begun studying the Chicago *Archaeopteryx*, and her forthcoming research findings are based on never-before-seen details of the animal's skeleton, especially its skull.

This spring, visitors to the museum got a sneak preview of the fossil, along with a hologram-like animated 3D projection showing how *Archaeopteryx* would have looked in life. It will go on permanent display in Fall 2024.



(Opening page) A drawing portraying two Archaeopteryx squabbling over prey in the Jurassic Period, 150 million years ago.

(Opposite) When you meet the Chicago Archaeopteryx*, you'll appreciate the origins of the dinosaurs that still fly above us—birds.*

(Above, right) In some places, the scales that covered the bottom of the foot are preserved, visible only under UV light. These indicate the foot was adapted for walking on the ground.

(Below, left) Associate Curator of Fossil Reptiles Jingmai O'Connor unpacks Archaeopteryx *when it arrives at the Field Museum.*

Acquisition of **the Chicago *Archaeopteryx*** was made possible through the generosity of the Walter Family Foundation and a challenge grant from an anonymous donor.

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Diana and David Moore

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Nicholas J. Pritzker

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Marshall B. Front Family Charitable Foundation/ Laura De Ferrari and Marshall B. Front

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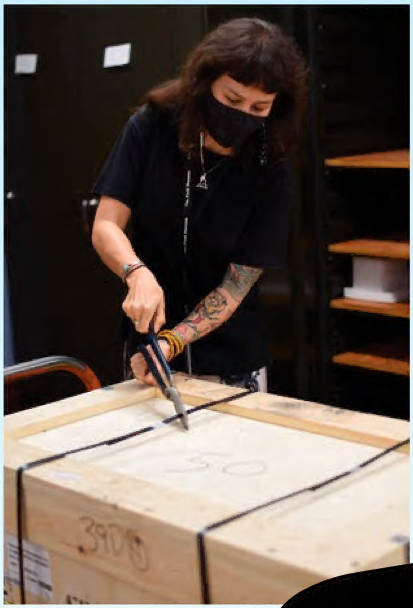
ARC'TERYX
CHICAGO



Archaeopteryx is arguably the most important fossil ever discovered. It transformed how scientists see the world, by providing strong support for Darwin's theory of evolution.

(Left) Ylanda in Kendall County Forest Preserve District: Hoover Forest Preserve.

NOEL BATRES

CHANGING FACE OF SCIENCE: YLANDA WILHITE

BY LAUREN BOEGEN, EXHIBITIONS

The Youth and Community Partnership Organizer on the Keller Science Action Center's Chicago region team, Ylanda Wilhite spends her days helping students discover the natural world in Chicago and engaging them in science—right in their neighborhoods.

She grew up visiting her grandparents in Chicago and dreamed of being an archaeologist. Her Grandma Smith taught her about food science, guiding Ylanda in how to care for the environment in a sustainable way. Her Grandma Wilhite, a teacher and powerful advocate for education, taught Ylanda about community organizing. Both women were strong influences on Ylanda and greatly impacted her career.

Driven by her passion for archaeology, Ylanda studied Spanish and anthropology in college. During a study abroad trip to Peru, she met the mother of Maria Elena Moyano, an Afro-Peruvian woman who was assassinated for her activism in opposing Peru's Communist Party. Later taking an internship at the Field Museum in the Environment, Culture, and Conservation department, Ylanda worked with Chicago's Southeast Asian community on sustainability and local gardening. Experiences like these fused her interests in anthropology and botany, with the activism she learned from her grandmothers, and the desire to educate.

Today, Ylanda teaches Chicago students about the natural world in the city and how they can directly impact their communities. Ylanda says, "You don't have to go to far-off places to do science, it can happen in your own backyard!"

Away from the Museum, Ylanda continues to look for adventures and loves spending time outdoors. She also co-founded the non-profit Chicago Environmental Educators, a fee-free network that connects Chicago science educators, encouraging collaboration and support while also addressing environmental justice issues within communities. Visit *The Changing Face of Science: Ylanda Wilhite* to learn more!

The Changing Face of Science: Ylanda Wilhite **is open until March 28, 2025, in the Gary C. Comer Family Gallery and is made possible in part by the Institute of Museum and Library Services, Grant Award #MA-249085-OMS-21.**

INSTITUTE of Museum and Library SERVICES

THORSTEN LUMBSCH ELECTED AS AAAS FELLOW FOR SCIENTIFIC ACHIEVEMENTS

BY MALAYA TINDONGAN, INSTITUTIONAL ADVANCEMENT

“Congratulations to Thorsten on this well-deserved recognition of his outstanding work and contributions to the field of evolutionary biology,” said Field Museum President and CEO Julian Siggers, PhD.

Lumbsch joins a class of 502 scientists, engineers, and innovators across 24 disciplines recognized for their efforts on behalf of the advancement of science or its applications in service to society. His work with lichens has resulted in distinguished contributions to the field of evolutionary biology, particularly in improving our understanding of species delimitation and the evolutionary history of symbiotic fungi.

Lumbsch has been fascinated by lichens since his childhood, publishing his first paper at age 15. He received his Ph.D. from the University of Essen in 1993, and served as an assistant professor at the University of Duisburg-Essen before joining the Field Museum. His publications number nearly 600 papers, 20 book chapters, and five books. He has active research collaborations in Thailand, Spain, and Kenya, and is an investigator on research grants in the US, Brazil, and Spain. Fieldwork has taken him to Antarctica and more than a dozen countries including Australia, India, Kenya, Thailand, and Vietnam. He has collaborated on the description of more than 280 new lichen species. Thorsten is managing editor of the journal *MycoKeys*, a member of a dozen other editorial boards, and past president of the International Association for Lichenology.

“Thorsten Lumbsch is a recognized leader in the field of lichenology, and a much respected member of the senior team at the Field Museum. The Board of Trustees is proud of his many accomplishments, including this very prestigious honor,” said Trustee David Hiller.

In addition to his administrative and research roles, Lumbsch is also active as a mentor to the next generation of scientists. He is a lecturer at the University of Chicago, and is active in advising graduate students there and at the University of Illinois–Chicago. He also supervises postdoctoral scientists at the Museum and served as content adviser for the exhibit *Lichens: The Coolest Things You’ve Never Heard Of* (2014–2017).

Vice President of Science and Curator of Lichenized Fungi Thorsten Lumbsch, PhD, has been elected as an American Association for the Advancement of Science (AAAS) Fellow, a distinguished lifetime honor within the scientific community.

MATTHEW NELSEN

(Above) Thorsten Lumbsch in the field in Taiwan.

BATS, BIRDS, AND BUGS!

Conservation at the Field Museum

ZACH JOHNSTON © FIELD MUSEUM

At the Field Museum, we put science into action to conserve nature across the globe and in our own backyard.

The Daniel F. and Ada L. Rice Native Gardens provide a space for Museum conservation scientists to support native species of plants and animals from Monarch butterflies to bats. Field scientists work across the metropolitan area to conserve and protect Chicago's wildlife and natural resources.

MONARCH BUTTERFLIES

Monarch butterflies play an important role as pollinators and are known for migrating up to 3,000 miles! However, monarch populations have decreased by more than 80% in 20 years as their habitat of milkweed and nectar plants declined in North America. Scientists at the Field's Keller Science Action Center work to understand the role of urban areas in supporting monarchs, implement science programs around Chicago, and develop accessible resources to help monarchs and other pollinators.

The Field Museum is working with partners all over the city to plant native pollinator gardens that support not only Monarch butterflies but Chicago's other pollinator populations.

To learn how to plant your own native garden go online to fieldmuseum.io/native-garden or scan the QR code.

(Above) A Monarch butterfly rests on a purple cone flower in the Rice Native Gardens.

(Right) A little brown bat, the official state bat of Illinois, hangs from a rocky crevasse.

BATS

Bats might be spooky, but they are incredibly important pollinators and pest control agents. Many species of bats are becoming threatened or endangered due to climate change and human activity that destroys their natural habitats. To help protect Chicago's native bats, the Field Museum installed bat boxes in the Rice Native Gardens. These boxes provide a safe place for bats to live so they don't get into homes and offices where they are not wanted. And it gives them a perfect vantage point for snacking on mosquitos and other insects that can spread diseases to humans.

In addition, the Field Museum is conducting a special project to monitor Chicago's bat populations throughout the city through the use of special technology to capture bat echolocation calls. Much as scientists track elusive bird species, acoustic monitoring allows Field scientists to conduct non-invasive studies using a spectrogram to capture the ultrasonic calls in real time. Scientists identify bats from the recordings, which helps identify which species are living in an area.

USFWS NATIONAL DIGITAL LIBRARY

JOHN BATES © FIELD MUSEUM

PURPLE MARTINS

As peregrine banding season winds down, purple martin banding begins. In 2021, two nesting towers were installed at the Field. Although efforts to attract martins to date have been unsuccessful, the Field staff continue to study the martins at other Park District sites along Chicago's lakefront. With a possible relocation of our museum towers, we hope to be able to bring our work with these fascinating birds to our own front door!

Purple martins are part of a group of birds that build their nests in cavities. Overwintering in Brazil, these birds return to North America to lay their eggs. Most purple martins end up east of the Rocky Mountains, where they rely on man-made structures for housing. Without our intervention, these birds would struggle to find places to nest and hatch their young.

This fall, if you see a falcon on the ground (or any injured bird, regardless of species), please call the Chicago Bird Collision Monitors at 773.988.1867.

PEREGRINE FALCONS

MARY HENNEN

2024 marks 25 years of the peregrine as the official Chicago bird. Known for being the fastest animal alive, the once-endangered peregrine has adapted and thrived in our urban environment. Staff and volunteers with the Field's Chicago Peregraine Program monitor nest sites and track individual peregrines. To date, more than 700 peregrine chicks have been banded to study their longevity and dispersal in the species.

Webcams are active April-June for the public to view falcons safely. Scan the QR code or go online to fieldmuseum.io/Illinois-peregrines to find out more!

(Above, left) Female purple martin brings insects to her nestlings along the Chicago lakefront.

(Right) "Nora", a Female Peregrine born in Elk River, MN now nesting in Peoria, IL.

(Below) Rockford Peregrine chicks on banding day!

MARY HENNEN

LIVING ON THE ROOF OF THE WORLD

BY ANDERSON FEIJÓ, PHD, ASSISTANT CURATOR OF MAMMALS

Pikas are emblematic animals of high mountain habitats. These mammals—closely related to rabbits and hares—can live at extremely high altitudes, reaching up to 6,000 meters (nearly 20,000 feet) in the Tibetan plateau, the highest plateau on Earth, also known as "the roof of the world." Because of their low resilience to warm temperatures, pikas have become a climate sentinel that helps us track the effects of global warming on wildlife. Since 2017, I have worked with scientists and students from the Chinese Academy of Sciences to better understand how these animals survive in such extreme altitudes and learn about their climate resilience. In a new study published this spring, we examined genes in the heart, liver, spleen, lung, kidney, and brain of pikas living at high and mid-altitudes to detect how they adapted to distinct environments. My colleagues and I discovered that high-altitude pikas have more active genes related to fixing DNA damage, energy metabolism, and immune regulation—for example, some of these genes help inhibit the development of liver cancer. Overall, the results reveal that high-altitude pikas are better at using energy in oxygen-limited environments and also have enhanced immune systems and better cell repair regulation, which protect them from inflammation and tissue damage caused by high UV radiation. All of these findings illuminate how pikas have evolved to respond to the physiological demands required to survive in extremely high elevations. My colleagues and I plan to study other high-altitude mammals and expand our research to other mountainous regions like the Andes in South America.

ANDERSON FEIJÓ

ANDERSON FEIJÓ

(Left) Mammals crew searching for pikas in the Tibetan Plateau.

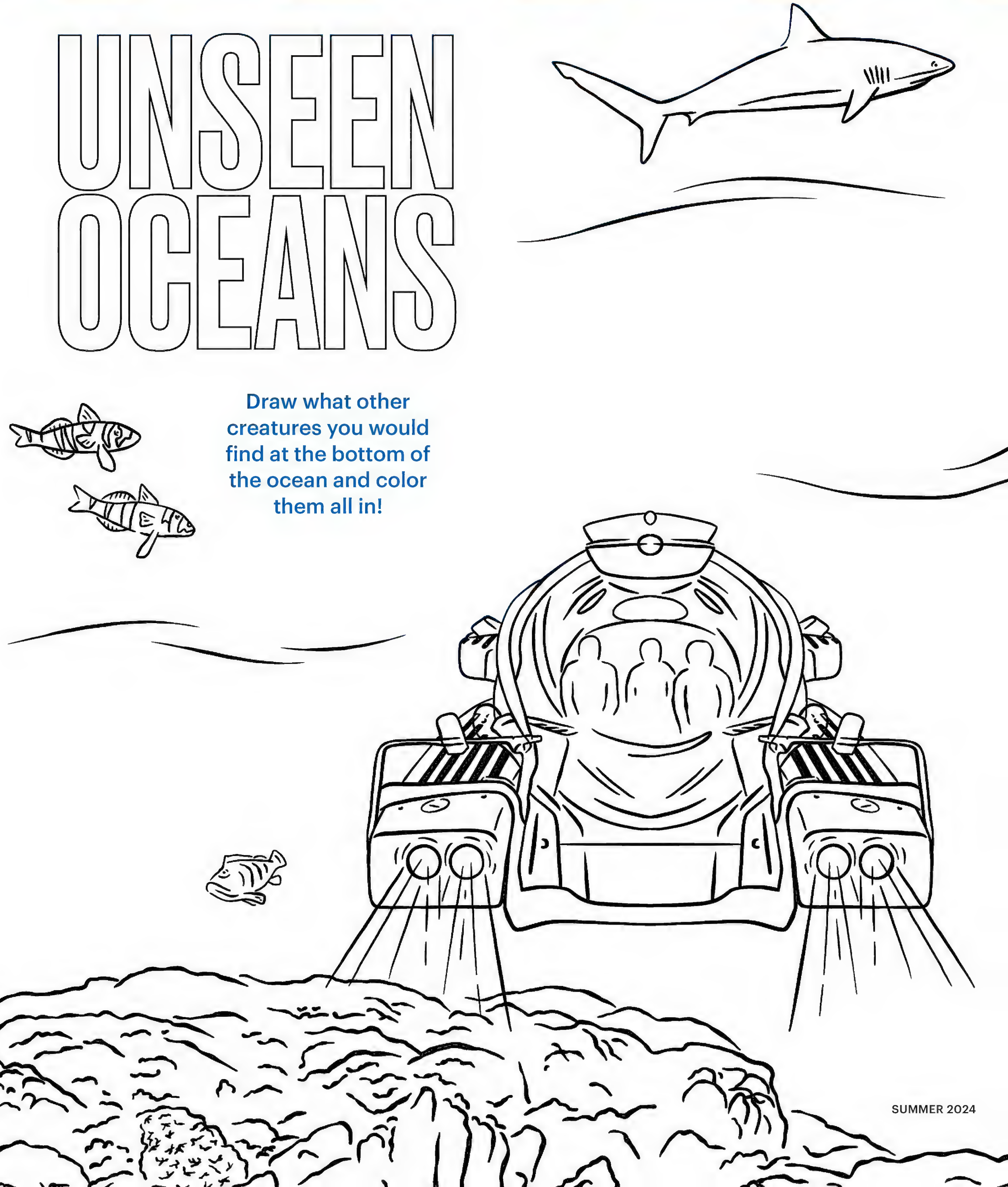
(Above) Anderson Feijó holding a plateau pika that he studied while working in China in 2021.

FIELD FOR KIDS!

This summer, explore the deep sea with the whole family in *Unseen Oceans*.

UNSEEN OCEANS

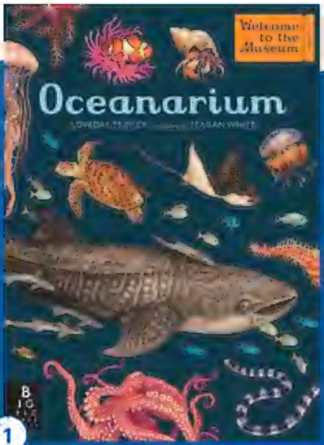
Draw what other creatures you would find at the bottom of the ocean and color them all in!

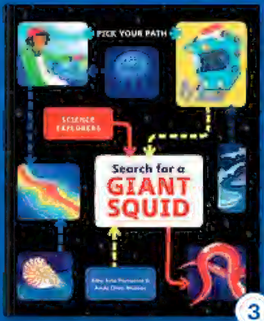


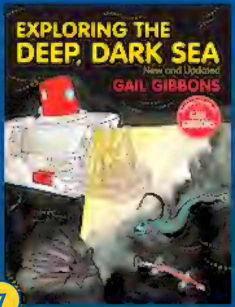
UNSEEN OCEANS SUMMER READING LIST

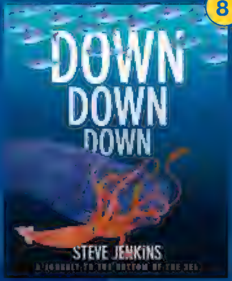
We know more about outer space than our own ocean. If you want to dive deeper into the exploration of the sea, check out some of our book suggestions! You can find some of these books in the Field Museum Store. Whether you want to learn more about marine animals, read an under-the-sea story, or look at some ocean artwork, there is something for everyone at the Museum!

Visit our website at
store.fieldmuseum.org
or scan the QR code
to explore.









FOR THE FUTURE MARINE BIOLOGISTS

1. Oceanarium: Welcome to the Museum
2. Alien Ocean Animals
3. Search for a Giant Squid
4. Ocean: A Visual Encyclopedia

FOR THE ARTISTS

5. Ocean: A Visual Miscellany
6. The Brilliant Deep: Rebuilding the World's Coral Reef
7. Exploring the Deep, Dark Sea
8. Down, Down, Down

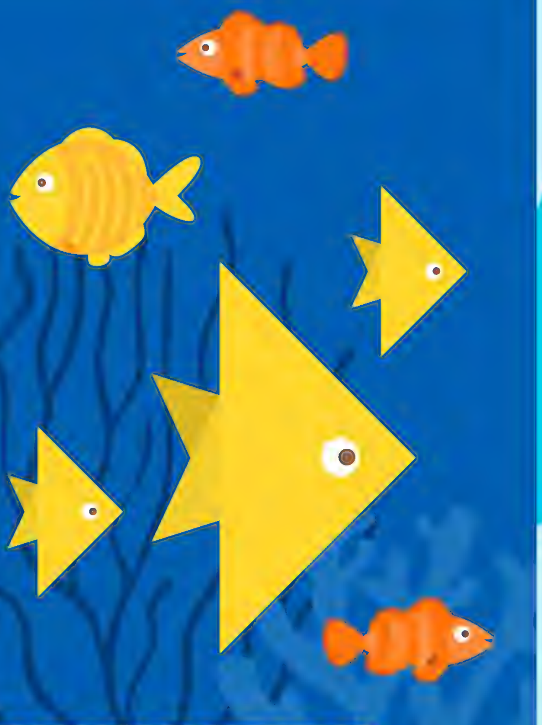
FOR THE STORY LOVERS

9. From Shore to Ocean Floor: The Human Journey to the Deep
10. Shark Lady: The True Story of How Eugenie Clark Became the Ocean's Most Fearless Scientist
11. A Dive into the Deep

FOLD-A-FISH

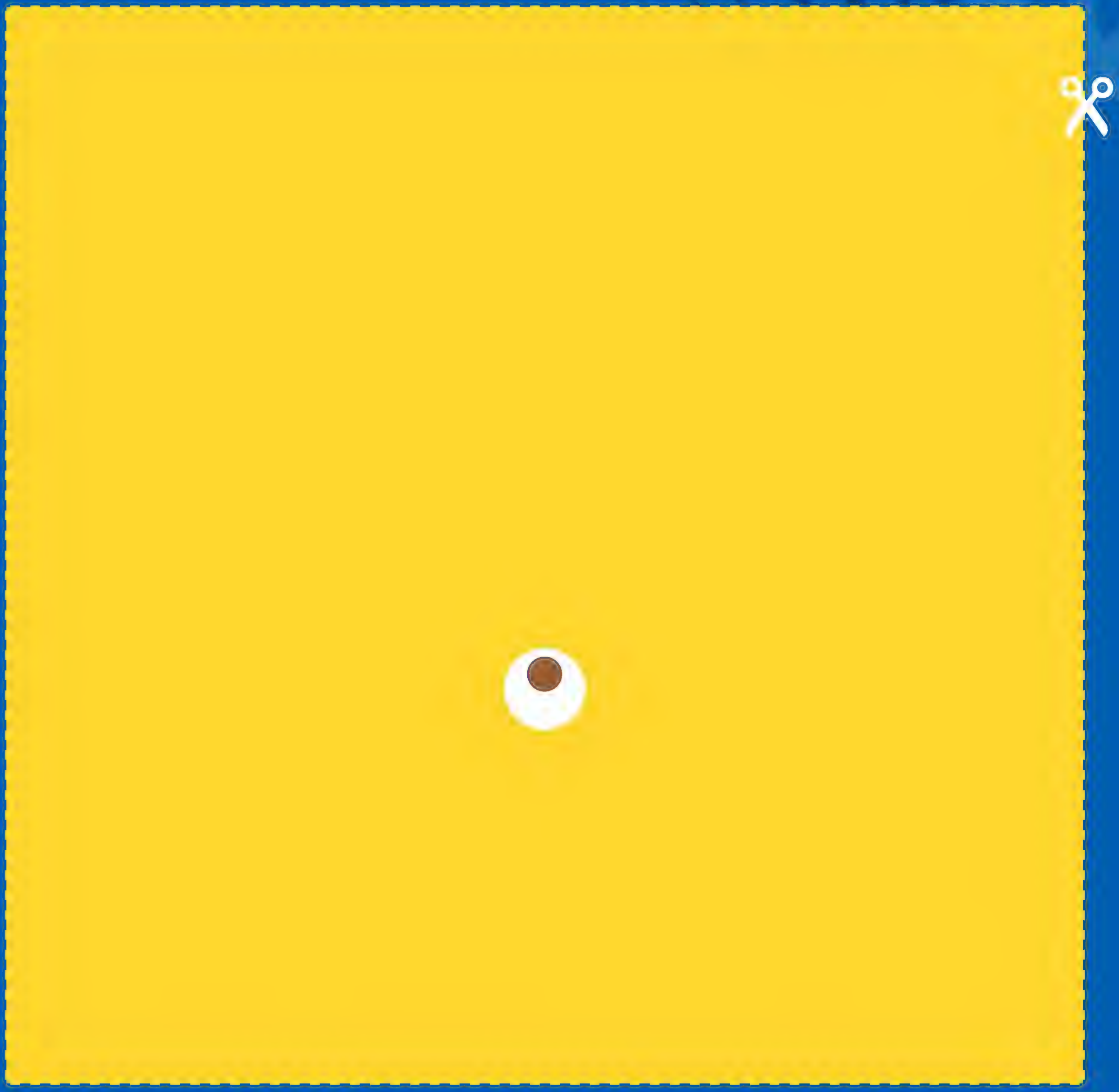
WHAT YOU'LL NEED:

- Fold-a-Fish diagram
- Scissors
- Tape
- Crayons or markers

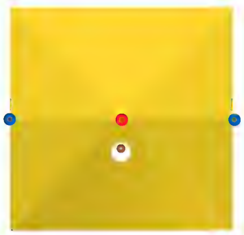


Make an origami fish! Start by cutting out the Fold-a-Fish diagram below, and then follow the instructions on the back side of this sheet to make an aquatic friend.

Origami is the art form of folding paper to create three-dimensional animals or characters. Although origami is often associated with Japan, the origins lie in China where paper was originally created more than 1,000 years ago. Buddhist monks then brought paper and paper-making techniques to Korea and Japan. After landing in Japan, paper-making techniques were improved and paper became more widely accessible. Today, people of all ages and skill levels practice origami around the world.



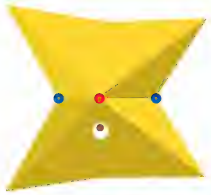
INSTRUCTIONS

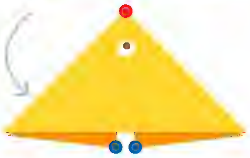


STEP 1

Cut out the square origami diagram. Fold the square diagonally on both sides, then in half once.

Crease and then unfold so your square is flat again.

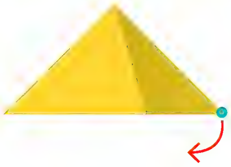




STEP 2

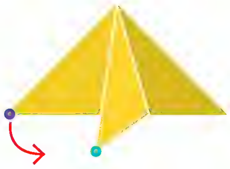
Hold the paper at the blue dots, and fold inward towards the center to make a triangle shape.

Flip the triangle shape over so the eyeball is on the back side before moving on to step 3.



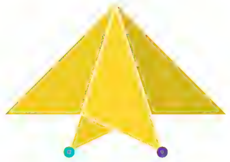
STEP 3

Hold the right bottom corner of the triangle and fold it toward the center along the crease shown to the left.



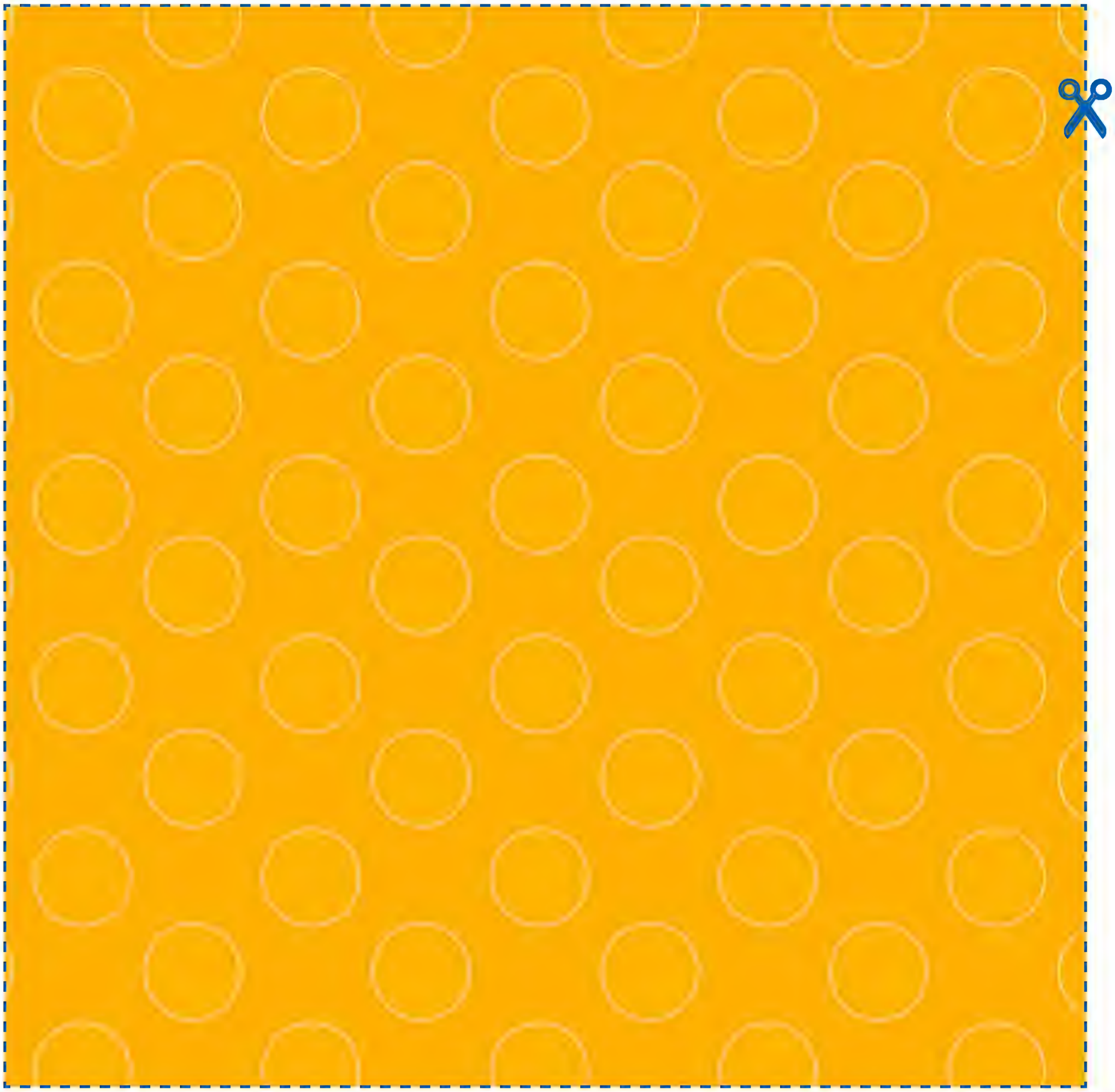
STEP 4

Do the same with the other corner, folding it over to the right. That makes your fish tail!



STEP 5

Press your folds and flip your fish over — you're ready to decorate! Draw scales, gills, fins, or patterns to make your fish your own.



CATS:

PREDATORS TO PETS

Cats: Predators to Pets is coming to the Field Museum! The first evidence of cats' domestication dates back to around 10,000 years ago. Our fluffy friends have come a long way, from living primarily outside—drawn to farms with an abundace of rodents—to the house cats today that meow to their humans in hopes of kibble and attention.

Cats: Predators to Pets **opens at the Field Museum December 2024.**

Former PhD student at UIC Emily Baca working in the LA-ICP-MS lab.

20 YEARS OF ELEMENTAL ANALYSIS

BY LAURE DUSSUBIEUX, PHD, SENIOR RESEARCH SCIENTIST AND LAB MANAGER; AND **RYAN WILLIAMS, PHD,** ADJUNCT CURATOR, NEGAUNEE INTEGRATIVE RESEARCH CENTER

An archaeology graduate student targets her laser on a small fragment of pottery and fires it for 60 seconds as small plumes of material erupt from the surface and stick to the plasma. Again and again, she ablates her sample, sending minute quantities of ceramic dust into the plasma stream. The heat is so intense, it breaks down the particles into their constituent elements, enabling her to measure the individual atoms, element by element, at extremely high resolution. Satisfied with her firing execution, she consults the readouts of the measurements on her computer. Eureka! It's Otora clay.

While it sounds like science fiction, it's a true story, the likes of which has played out in the Field Museum's Elemental Analysis Facility for the last 20 years. These studies are key to gaining a better understanding of the communities that manufactured, utilized, and traded archaeological materials around the globe. In order to conduct this cutting edge research, the Elemental Analysis Facility (EAF) at the Field Museum was founded thanks to a major research instrument grant from the National Science Foundation with renovation support of the Field Museum's Anthropology Alliance.

The central piece of the EAF is a laser ablation—inductively coupled plasma–mass spectrometer (LA-ICP-MS). Over the years, this technique has become the gold standard to analyze ancient materials, reconstruct recipes used in the past, and track object circulation. With this technology we can reveal historical details hidden in the object itself. Through this, for example, as our researchers can track the journey of glass beads around the Indian Ocean and examine Peruvian ceramic production to understand political and economic shifts over time in this region of South America.

Over the years the EAF has been the site of more than 350 projects that led to more than 230 publications. This year a new mobile Raman microscope was added to the analytical suites of instruments thanks to generous funding from the Grainger Foundation. Raman spectroscopy non-destructively identifies molecules in an object by directing the light produced by a laser onto its surface and measuring the scattered photons that interact with the samples. This new Raman is mobile and can accommodate objects of any size. Although LA-ICP-MS can indicate which elements are present in a sample, only Raman can identify the minerals formed by these elements providing invaluable information about ancient technologies. We plan on investigating pigments like Maya blue—used in Mesoamerica pottery—to gain an understanding of how this pigment was made and applied on ceramics.

SPOT THIS PLANT IN YOUR BACKYARD!

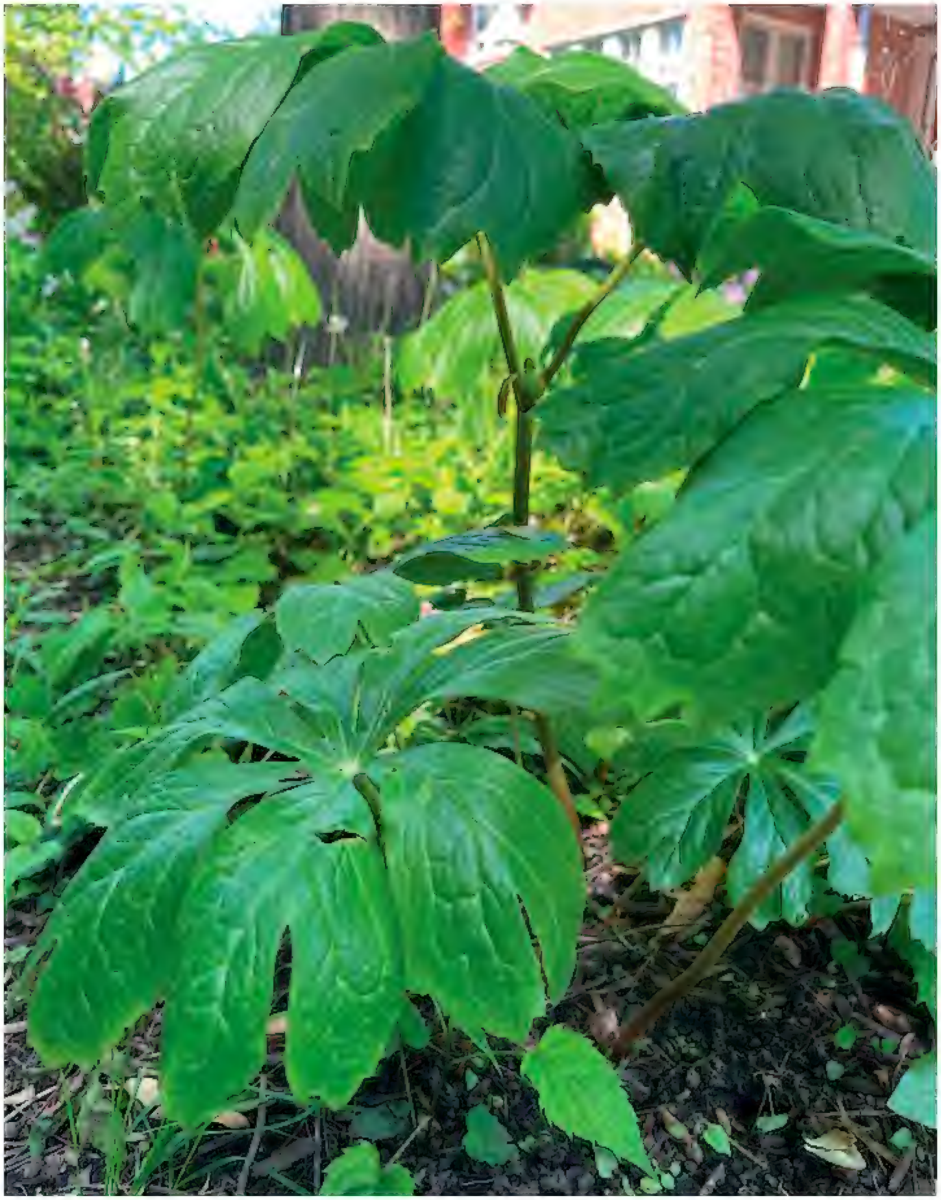
BY MALAYA TINDONGAN, INSTITUTIONAL ADVANCEMENT

The mayapple (*Podophyllum peltatum*), also known as the American mandrake, is a perennial plant resembling an umbrella. You might have seen them popping up in forests, shady riverbeds, or even on the side of a road in the summertime. Mayapples are found only in Eastern and Central parts of the United States and are often in colonies as they share a root system. The stem of the plant produces one or two leaves, though only the mayapples with two leaves will flower and fruit.

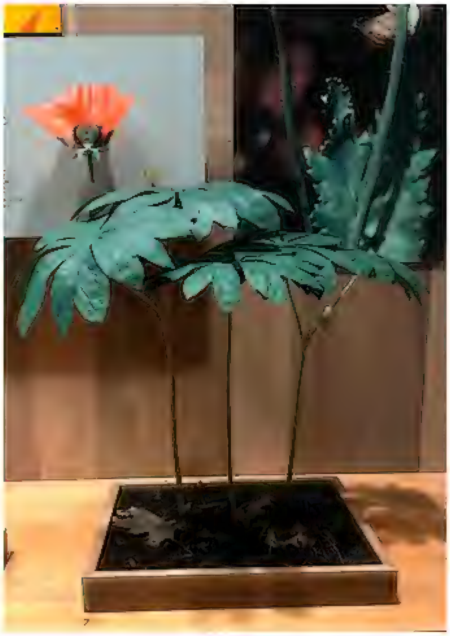
Mayapples' reproductive cycle lasts just a few months as they emerge in early spring with their leaves furled appearing like a closed umbrella. Around April and May they begin to flower, producing small white flowers that fruit in late summer. Like many plants, mayapples rely on pollinators and other animals to successfully reproduce. Box turtles are one of the most common animals that eat and distribute the seeds.

Be vigilant, as every part of the mayapple plant is poisonous to humans, except for the fruit when it is ripe—which can be enjoyed in jellies and pies. Native Americans used mayapples for various medical purposes such as a treatment for rheumatism and as a natural insecticide. The use of mayapple extract, known as podophyllin, continues to today and is being used in trials for medicines to treat cancers and venereal diseases.

Visit the Field Museum and see a display of mayapples in *Plants of the World* and look out for them next time you're taking a walk through shady woods or along a river bank.



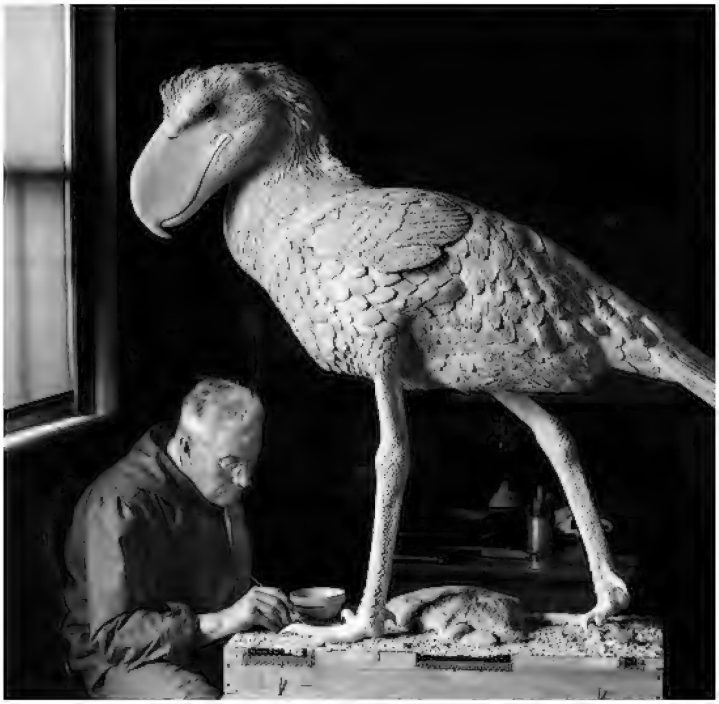
MALAYA TINDONGAN © FIELD MUSEUM

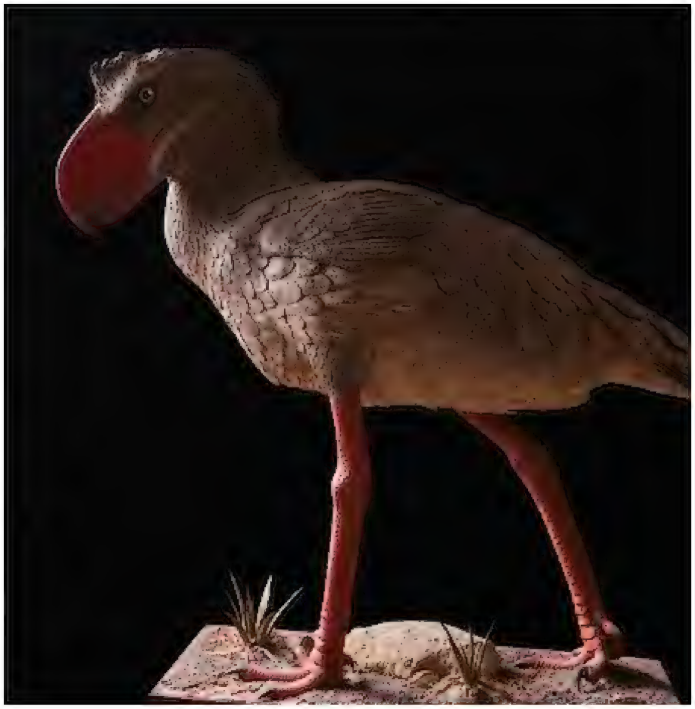


MALAYA TINDONGAN © FIELD MUSEUM

(Left) Mayapples are native to much of the eastern and central United States, including this wild specimen found in Albany Park near the Francisco Brown line station.

(Above) See a model mayapple along with several other species of plants you might find in your backyard in the Plants of the World Hall.





FIELD MUSEUM ARCHIVES Z84130

MICHELLE KUO © FIELD MUSEUM

SEE HISTORIC FIELD MUSEUM EXHIBITIONS ONLINE!

BY MALAYA TINDONGAN, INSTITUTIONAL ADVANCEMENT

The Field Museum is proud to share a new website with the Illinois Digital Archives.

The *History of Exhibitions at the Field Museum 1921–1959* is a project in which thousands of historical photos were digitized and made available for anyone with computer access to view.

Nina Cummings, Photo Archivist and Head of the Library Collections Gretchen Rings, led the 2.5 year-long project. Nina's work, with the help of many Field Museum employees, resulted in an accessible website with 4,219 pages of images and data related to Botany, Geology, Zoology, and more.

The online collection not only allows for access to the vast, historical archive of photos, but also provides multiple ways to find and view them. Alphabetically organized images are displayed on the main page, however, photos can be found through categorizations of collections, subjects, departments, dates, and contributors.

Funded by a grant from the Illinois Secretary of State, the intent of the website is to provide access to photos and history otherwise unavailable to the public. Additionally, a new method of digital capture was tested to digitize photographic negatives that proved to be faster and better for the original film negatives.

The 2.5 year process of taking physical photo negatives and uploading them to the digital archives was completed in a series of steps. Nina narrowed down the 5,000 negatives to 4,000 before they were made into high resolution copies by a digital capture specialist and matched with text data. The work of Nina and the team paid off, resulting in the comprehensive archive collection anyone can now view.

A highlight of the collection is the "THEN and NOW" section which features historical photos with 80 new photos reflecting and honoring the originals.

Thanks to the collaborative work of the project, a portion of the Photographic Archives are now available and accessible online. Scan the QR code to view the archives!

(Above, left) Field Museum taxidermist Leon Pray working on the model of the fossil bird Andalgalornis ferox, *also known as the terror bird.*

(Above, right) Life-size restoration model of Andalgalornis ferox, *an ancient bird known only through the fossil record. This species, which lived approximately eleven million years ago, is shown here in its full, "frightful" aspect through the artistry of Leon Pray. When pictures of his model were released to the press it was given the nickname, the Terror Bird.*

(Far left) ***Dinner is Served!***
Photographer: Kristen Hanson

(Left) ***Bullfrog on Sidewalk***
Photographer: Leo Cernansky, age 14

(Below) ***Getting a Little Messy is Fun!***
Photographer: Abby Dine, Age 13

In The Field Photography Contest

ENTER NOW!

The Field Museum encourages everyone to get outside and connect with the natural world and the human story. What better way than snapping a stunning photograph of the nature that's all around us?

Submit your photos now through August 5 for a chance to win! Scan the QR code for more information about how to enter.

CATEGORIES:

Urban Wildlife
Document the cooperation, or lack thereof, between the natural world and human made environments.

Real-life Diorama
Inspired by the Field's renowned taxidermy, portray animals and plants in their natural habitat. This category can include landscapes.

Museum Moments
There's so much to do and see at the Field Museum. Snap a photo of what inspires you about our collections, learning opportunities, and our historic lake-shore building. Portraits and candids are encouraged with proper releases.

NEW CATEGORY
Kids can participate too! For each category we will select a winner who is under 18 years of age in addition to an adult winner.

No purchase necessary. Open to Field Museum Members and their households ages 5 and up; participation by minors requires parental permission. Must be legal U.S. resident. Contest begins 04/01/2024 and ends 08/05/2024. Void where prohibited. Official rules available at fieldmuseum.io/field-photo-contest.

COLLECTIONS CLUB CELEBRATES A MILESTONE

BY MATT VON KONRAT, PHD, HEAD OF BOTANICAL COLLECTIONS

In 2017, the Collections Club was created when volunteers expressed a strong interest in continuing working with the Museum following their participation in the 2016 and 2015 WeDigBio public transcription events. WeDigBio is a global event that engages participants online and onsite in digitizing natural history collections. Volunteers joined museums around the world as part of a global four day effort to digitize centuries of data about life on Earth. The Collections Club typically meets quarterly with members of broad backgrounds including Field Museum members, docents, youth, families, teachers, and librarians participating each quarter.

The major goal of the Collections Club is to deepen the connection between scientific collections and the general public, and increase engagement through participatory science. Volunteers aid in improving and enhancing physical specimens or data associated with scientific specimens and objects.

Since the launch of Collections Club in 2017, volunteers have processed 258,873 specimens, objects and records! Activities have included: inventorying, collection care, application of physical barcodes, databasing, and imaging as well as many other contributions. With digitization efforts across the collections, several areas were able to quickly adapt to virtual participation throughout the pandemic, especially Insects and the Botanical Collections. Today, virtual participation remains popular.

Along with Colleen Bailey, Collections Club member, Yarency Rodriguez, Collections Assistant, Botanical Collections, as well as Field Museum members, docents, high school and under grads, and Jeff Gwilliam, Volunteer, Botanical Collections, I am preparing a manuscript for publication to share the journey and experience of the Collections Club!

The next Collections Club/ WeDigBio event will be held October 10–13. Contact Matt von Konrat and Yarency Rodriguez at: wedigbio@fieldmuseum.org

(Below) Collection Club members attend an event preparing to transcribe label information from plant specimens through an online platform as well as curate physical specimens. Participants include families, youth, and the general public so all ages can participate and make an impact.

WELCOME JADA WHITEROCK AND TAYLOR HUMMEL

BY THERESA RILLEY, ADMINISTRATIVE COORDINATOR, GANTZ FAMILY COLLECTIONS CENTER

The Gantz Family Collections Center welcomes Jada Whiterock and Taylor Hummel as the new Early Career Fellows for Native American Anthropology. The fellowship was designed for recent college graduates with lived Native American cultural experience who intend to pursue careers in museum collections management, registration, conservation, or curation. The fellowship opportunity is made possible by the Mellon Foundation.

Jada Whiterock grew up on the Navajo Reservation in Arizona before moving to Kansas. She attended Barton Community College for an associate degree in art and transfered to Wichita State University where she graduated with a Bachelor of Arts in Art History in 2023. An internship at the Nelson-Atkins Museum of Art in 2019 helped Jada develop an interest in working at a museum.

Taylor Hummel is a citizen of the Tuscarora Nation and belongs to the Bear Clan. She has a Bachelor of Arts in Anthropology from Dartmouth College and graduated with a Master of Library and Information Science from San José State University in May 2024. Previously, Taylor worked as an environmental technician for the Tuscarora Environment Program and a teacher and curriculum developer for the Tuscarora Language Program. She also worked as a community archivist for the University at Buffalo Indigenous Studies Department.

The year-long Mellon fellowship allows awardees the opportunity to work directly on the conservation and care of the Field Museum's Native American Collections and to collaborate with conservators, collections managers, and Native community members.

JADA WHITEROCK

TAYLOR HUMMEL

(Above, right) Jada Whiterock

(Right) Taylor Hummel

Ask an Expert:

WHAT'S UP WITH THE CICADAS?

© TAYLOR COHRON

By Chander Cohron
Editor

Malaya Tindongon
Institutional Advancement

Maureen Turcatel, PhD
Collections Manager, Gantz Family Collections Center

A cicada perches on a flower in Waterfall Glen Forest Preserve.

Cicadas, vocal creatures about 2–5 centimeters in length, have one of the longest insect lifespans. There are two kinds of cicadas, periodical, which return every 13 or 17 years, and annual, which return every year. Every 221 years, including this summer, two periodical broods overlap and emerge at the same time! We sat down with **Collections Manager and entomologist Maureen Turcatel, PhD**, to learn about this summer's historic emergence.

What do you do at the Field Museum?

I manage the Insects, Arachnids, and Arthropods collection, which is the largest collection at the Field Museum. I oversee day-to-day curatorial activities in the collection, and I also dedicate part of my time to researching taxonomy and systematics of horseflies.

What was special about the cicadas this summer?

This year Illinois saw the emergence of two broods of periodical cicadas at the same time: the Brood XIII, also known as the Northern Illinois Brood, and Brood XIX, or the Great Southern Brood. Only a small area around Central Illinois saw the overlap of both broods, which only happens every 221 years.

How long were this summer's cicadas brooding underground? Why do cicadas exhibit this behavior?

Brood XIII only emerges every 17 years, and Brood XIX every 13 years. Most scientists agree that this behavior is a strategy to avoid predators, as it's very hard to specialize in a food source that is only present every 17 or 13 years. Also, there's safety in numbers, so when there are millions of individuals emerging at the same time, some may get eaten but most will survive.

Why are cicadas so loud?

Male cicadas make noise by vibrating their tymbals, which are ridged membranes present on the sides of their abdomen. The abdomen of male cicadas is mostly hollow and acts as a resonating chamber, and the combined volume of millions of cicadas can surpass 100 decibels.

What niche do cicadas fill in the environment? What should people know about them?

Cicadas feed on sap and are also food for birds, reptiles, and small mammals. The immatures can aerate the soil and improve water filtration, and after massive periodical emergences, they also provide nutrients to the soil as they decompose. Cicadas are harmless to humans, they don't bite or sting – there's no need to use pesticides, as they will go away in a couple of weeks. They will not damage mature trees, but young trees may need to be protected with nets.

Are cicadas really edible?

Yes, and I'm looking forward to trying some cicada dishes! However, people with shellfish allergies should be cautious, as well as pet owners, as cats and dogs may get an upset stomach if they eat too many cicadas.

(Above, left) Collections Manager Maureen Turcatel collects specimens in the field.

(Above) Colorful Cicada Parade-a casts that were on display in the Grainger Science Hub as part of the Museum's cicada celebration.

CHRIS PHILIPP © FIELD MUSEUM

CONNECTING COLLECTIONS WITH COMMUNITIES

BY CHRIS PHILIPP, REGENSTEIN COLLECTIONS MANAGER; AND **JULIA KENNEDY,** COLLECTIONS ASSISTANT, GANTZ FAMILY COLLECTIONS CENTER

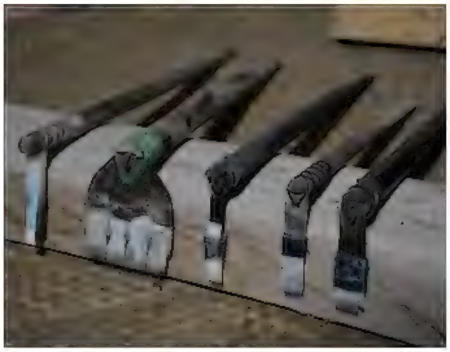
In November 2023, we traveled to American Samoa to continue a 2011 collaboration with artists Reggie Meredith Fitiao and Su'a Uilisone Fitiao.

Reggie, a maker of *siapo mamanu* (freehand painted tapa bark cloth), and Uilisone, a *Tufuga Ta Tatau* (tattoo master), carver, and siapo maker, have both contributed contemporary works to the anthropology collections at the Field. In 2022, they visited the Field to research historical Samoan *measina* (treasures) cared for by the Museum. This year, they will start planning for 2025 when they will have the opportunity to share their stories and art in the *Regenstein Halls of the Pacific* rotating gallery. Visitors will be invited to learn about and connect with Samoan culture through these two ancient but dynamic and continuing art forms.

Reggie and Uilisone emphasized the deep cultural importance of their art forms. We were privileged to attend a *samanga malu* ceremony celebrating the completion of a woman's leg tattoos, and watch Uilisone's tattooing process using handmade tools called *'au ta*. They participated with Reggie in the decoration of siapo, made from the inner bark of the *u`a*, or paper mulberry tree (*Broussenetia papyrifera*), and painted with a brush made from a dried pandanaus fruit. Painting was done using natural dyes, such as the reddish-brown pigment derived from scrapings of the bark of the *o`a* tree, or Blood Tree (*Bishofia Javanica*), and black pigment from the burnt fruits of the candlenut tree.

We also conducted provenance research on existing collections from American Samoa, visiting the territory's registrar, archives, and library. We discovered the identity of the family of siapo makers responsible for two special pieces in the FM collections: a siapo and the century old *upeti*, or pattern board, used to create it. The pieces were donated by two different collectors, 30 years apart!

This outreach trip was made possible by the Womens' Board Field Dreams program and has deepened the connection between the Field Museum and just one of the many living communities represented in its collections. We hope to see similar mutually beneficial collaborative partnerships with other individuals and communities whose material cultural heritage is cared for at the Museum, and are excited to see what stories Reggie and Uilisone share with the Museum in 2025.



CHRIS PHILIPP © FIELD MUSEUM

(Top) Julia Kennedy and Reggie Meredith Fitiao paint a siapo using natural "brushes" made from the fruit of the pandanus plant.

(Above) Some of the types of tools used by Uilisone Fitiao for tattooing, Historically made of bone, Uilisone still uses tools similar to these in his practice today.

YOUR MIXED REALITY **ADVENTURE AWAITS**

Ready to make a lifesaving difference while experiencing the future of blood donation?

Join us on Saturday, August 31 for our summer blood drive in Stanley Field Hall featuring a revolutionary mixed reality experience.

Scan here
to sign up

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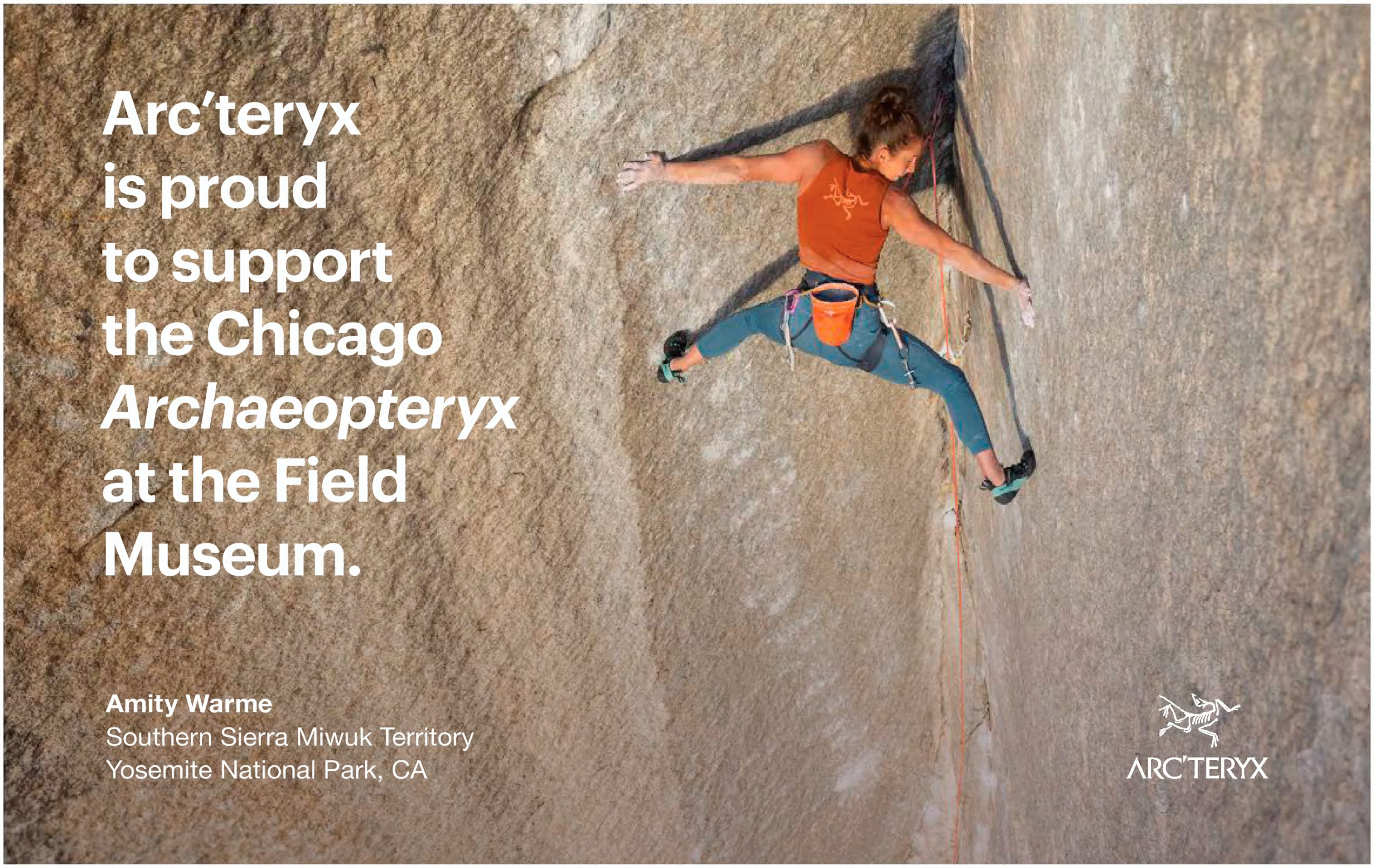

Arc'teryx is proud to support the Chicago *Archaeopteryx* at the Field Museum.

Amity Warme
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CHICAGO ARCHAEOPTERYX COLLECTION

Discover the **Chicago *Archaeopteryx* collection** and find the perfect piece to showcase your passion for this pivotal figure in the story of dinosaurs and birds.

SCAN TO SHOP

Members receive 10% off their purchases when they shop in-store or online.

MEMBER OPPORTUNITIES

MEMBER APPRECIATION MONTH

October 1–31

Your membership supports innovative programs, scientific research, and ground-breaking discoveries happening at the Museum every day. To show our appreciation members can enjoy special perks and events throughout the month of October!

- Members Dino-Night | Wednesday, October 9
- Discounts to BOO with SUE | Friday, October 18
- Members Spooktacular Science | Saturday, October 26
- Plus scavenger hunts, double discount days, member pins, and more!

Look out for your Members E-newsletter for more information.

MEMBER HOLIDAY LOUNGE

December 26, 2024–January 5, 2025

Come in from the cold and enjoy the Holiday Members' Lounge!

Members and Donors visiting during the bustling holiday weekend are invited to join us for a quiet break in the Museum's Founders' Room. Make sure to stop by and warm up with a toasty hot beverage. Enjoy family-friendly activities for your young explorers and light refreshments while you're there—families and friends are also welcome!

Museum Hours

The Field Museum is open from 9am–5pm every day except Thanksgiving and Christmas Day, with last admission at 4pm. For special hours, parking, and public transportation options, visit **fieldmuseum.org/visit**.

The Field Museum salutes the people of Chicago for their long-standing support of the Museum through the Chicago Park District.

UNITED AIRLINES

Official Airline of the Field Museum

ILLINOIS ARTS COUNCIL AGENCY

This program is partially supported by a grant from the Illinois Arts Council Agency.

For up-to-date information for all member events, visit **FIELDMUSEUM.ORG/MEMBEREVENTS**

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CLOSING SOON!

In The Field Photography Contest

Don't miss your chance to have your photo printed in *In The Field*.

Have you ever seen your name or a picture you have taken in a magazine? Enter the **Second Annual *In The Field* Photography Contest** for a chance to see your photo in the Fall issue of *In The Field*!

Explore the outdoors and the Field Museum with categories: **Urban Wildlife**, **Real-life Diorama**, and **Museum Moments**. For each category, we will choose one adult submission and one under 18 submission, so kids are welcome to participate too!

Don't forget to submit your photos by August 5th!

Scan the QR code for more information about how to enter.